

DU PONT

MATERIAL SAFETY DATA SHEET

IDENTIFICATION

Name:
Freon® 11

Synonyms:
Refrigerant 11,
Trichlorofluoromethane

CAS Name:
Methane, trichlorofluoro

Manufacturer/Distributor:
E. I. du Pont de Nemours & Co. (Inc.)

Address:
Freon® Products Division
Wilmington, DE 19898

Chemical Family:
Halogenated Hydrocarbon

Formula:
 CCl_3F

CAS Registry No.
75-69-4

Medical Emergency Phone:
(800) 441-3637

Transportation Emergency Phone:
CHEMTREC (800) 424-9300

PHYSICAL DATA

Boiling Point(°F): 75

Density: 1.48 g/cc @ 77°F

Vapor Density (Air = 1) 4.9

pH Information: Neutral

Form: Liquid

Color: Colorless

Percent Volatile by Volume: 100

Vapor Pressure: Initial: 0.7 psig @77°F

Solubility in H_2O : 0.1 % by Wt. @77°F

Evaporation Rate ($\text{CCl}_4 = 1$): 0.1

Appearance: Clear

Odor: Slight ethereal odor

HAZARDOUS COMPONENTS

Material(s):
Trichlorofluoromethane

Approximate % :
100

HAZARDOUS REACTIVITY

Stability:
Material is stable. However, avoid open flames and high temperatures

Incompatibility:
Alkali or alkaline earth metals - powdered Al, Zn, Be, etc.

Decomposition:

Freon® 11 can be decomposed by high temperatures (open flames, glowing surfaces, etc.) forming hydrochloric and hydrofluoric acids - possible carbonyl halides

Polymerization:

Will not occur

FIRE AND EXPLOSION DATA

Flash Point:

None

Method:

TOC

Autoignition Temperature:

Not Determined

Flammable Limits in Air, % by Vol.

Lower: Nonflammable

Upper: Nonflammable

Autodecomposition Temperature:

> 1100° F

Fire and Explosion:

Drums may rupture under fire conditions. Decomposition may occur.

Extinguishing Media:

Nonflammable

Special Fire Fighting Instructions:

Self-contained breathing apparatus may be required if drums rupture and contents are spilled under fire conditions.

HEALTH HAZARD INFORMATION

Principal Health Hazards

Inhalation: Vapor is heavier than air and can cause suffocation by reducing oxygen available for breathing. Breathing high concentrations of vapor may cause light-headedness, giddiness, shortness of breath, and may lead to narcosis, cardiac irregularities, unconsciousness or death. LC 50 Rat 26,200 ppm/4 hr.

Note: In screening tests with experimental animals, exposure at approximately 5,000 ppm (v/v) and above, followed by a large intravenous epinephrine challenge has induced serious cardiac irregularities.

Skin: Not a corrosive or irritant; however, repeated or prolonged liquid contact can cause defatting of skin.

Eye: Tests in rabbit eyes resulted in no observable damage.

Oral: Although the oral toxicity of Freon® 11 is low (ALD >3725 mg/kg in Rats) ingestion of FC-11 is to be avoided.

Exposure Limits:

PEL (OSHA) 1,000 ppm

TLV® TWA (ACGIH) 1,000 ppm ceiling

Safety Precautions: Avoid breathing vapors and prolonged skin exposure. Use only in well ventilated areas.

First Aid:

Inhalation: Remove to fresh air, call a physician. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Do not give epinephrine or similar drugs.

Note to Physicians: Because of a possible increased risk of eliciting cardiac dysrhythmias, catecholamine drugs, such as epinephrine, should be considered only as a last resort in life threatening emergencies.

Eye: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

Skin: The compound is not likely to be hazardous by skin contact, but cleansing of the skin after use is advisable.

Oral: No specific intervention is indicated as the compound is not likely to be hazardous by ingestion. Consult a physician if necessary. Do not induce vomiting as the hazard of aspirating the material into the lungs is a greater hazard than allowing it to progress through the intestinal tract.

Medical Conditions Possibly Aggravated by Exposure:

Skin Disease: Freon® 11 can dissolve the natural oil of the skin, therefore dermatitis may be expected to result from repeated contact. Persons with pre-existing skin disorders may be more susceptible to the effect of this agent.

Cardiovascular Disease: See Principal Health Hazards: Inhalation Section.

Other Health Hazards:

Freon® 11 is not classified as carcinogenic by IARC, NTP, and OSHA. Based on animal studies and human experiences this fluorocarbon poses no hazard to man relative to systemic toxicity, carcinogenicity, mutagenicity, or teratogenicity when occupational exposures are below its TLV®.

PROTECTION INFORMATION

Generally Applicable Control Measures:

Normal ventilation for standard manufacturing procedures is generally adequate. Local exhaust should be used when large amounts are released. Mechanical ventilation should be used in low places.

Personal Protective Equipment:

Butyl gloves should be used to avoid prolonged or repeated exposure. Chemical splash goggles should be available for use as needed to prevent eye contact. Under normal manufacturing conditions no respiratory protection is required when using this product. Self-contained breathing apparatus (SCRA) is required if a spill occurs.

DISPOSAL INFORMATION

Spill, Leak or Release: Ventilate area. Do not flush into sewers. Dike spill. Collect on absorbent material and transfer to steel drums for recovery or disposal. Comply with federal, state and local regulations on reporting releases.

Waste Disposal: EPA Hazardous Waste No. U121; F001; F002
Comply with federal, state, and local regulations. Reclaim by distillation or remove to a permitted waste disposal facility.

SHIPPING INFORMATION

Domestic - Other Than Air (DOT)

Proper Shipping Name	Non-regulated
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International Water or Air (IMO/ICAO)

Proper Shipping Name	Non-regulated
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Other Information

Shipping Containers	Drums, tank trucks, tank cars.
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Storage Conditions	Clean, dry area. Do not heat above 125°F.
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Date Revised: 10/85

Person responsible: T. D. Armstrong, Freon® Products Lab.,
Chestnut Run, Bldg. 711, Wilmington, DE 19898
(302) 999-3847 or (302) 999-4338.

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